

AN
E S S A Y
ON THE
NATURE, CAUSE and CURE,
OF A
Disease incident to the LIVER.

Hitherto but little known, though very frequent
and fatal in hot Climates.

*Non credunt posse eum scire, quomodo Morbos
Curare conveniat, qui unde hi sint ignoset.*

CELSUS.

By JOHN CRAWFORD,
Late Surgeon of the Earl of Middlesex East-Indiaman.

L O N D O N :

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Y A S S E

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Diagrams illustrating the
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T O

Sir George Colebrooke, Bart.

S I R,

THE distinguished part which you have so long supported, in the conduct of the affairs of the honourable East-India company, with so much reputation to yourself, and advantage to them, gives an address of this kind a peculiar propriety; for though it is prefixed to a performance which may not, at the first view, be thought so immediately an object of your concern, yet those who consider your great abilities, continually employed in the welfare of the people who are engaged in the company's service, will not, I apprehend, think the writer of these pages makes an improper application when he solicits your patronage for a little production in which their relief from a most alarming, and too often fatal disease, is particularly consulted; a patronage that cannot fail of recommending it to notice: When so advantageously introduced, there can be no doubt of its claiming some share of attention from the public,

public, by which means the principles it conveys will, it is hoped, meet with a candid examination, and be adopted according to their merits.

THE honour you have done me in permitting these sheets to appear under the sanction of your name, is a striking proof of your great affability, which we but too seldom find united with such eminent talents as yours ; talents that have been so often exerted, not only in the public meetings of the most respectable body in the *commercial*, but in the greatest national assembly in the *political* world.

I CANNOT suffer myself to intrude farther on your very important time, and shall therefore take the liberty of subscribing myself, with all possible respect,

S I R,

Your most obliged,

And most obedient,

Humble Servant,

JOHN CRAWFORD.

ADVERTISEMENT.

THE disorder which is the subject of the following sheets, so far as I can learn, has hitherto escaped the attention of most medical enquirers.

A very few physical writers, as BIANCHI and GRAINGER, have indeed taken notice of a disease in some circumstances similar to it; but then the situation, and the predisposing causes clearly pointed it out. Here it attacked a number of men, in different degrees of health, without shewing any symptoms from which the origin of it could be conjectured. The diagnostics of it were extremely fallacious, as many of them were very like those which occur in other complaints, that totally differ from this in their nature and cause, viz. of the scorbutic and dropsical kind; and it is apparent the most dangerous consequences must ensue whenever it is mistaken for any of these maladies.

In the sequel it will appear, that this disorder was violent in its effects, and upon some occasions fatal in its termination; and I have great reason to think it often occurs; and has been always classed with diseases to which it by no means belongs.

My errors in the treatment of the people who were first seized with this distemper, I have, as it certainly is the duty of every practitioner to do, faithfully confessed, and sincerely believe, that had the cause of it been known, it would not have proved fatal to any of our people.

May my mistakes be an advantage to others; may they be less hasty in giving the same names to diseases

eases alike in their appearances, but different in their origin; and when in doubt, may they be cautious, but yet unwearied, in their attempts to arrive at truth.

It may perhaps be alledged, that the description of the several stages of the disorder is too minute, particularly in the three men who died; to which I have only to say, that as it seems of importance, to be able truly to distinguish it whenever it occurs in future, I thought I could not be too attentive in particularising the symptoms.

The anatomical description of the liver, at the beginning, may also be objected to as unnecessary; in favour of that I have to plead, that it may possibly fall into some hands who would wish to see an account of the bowel in which the complaint was situated; and, as it is very short, any of the learned who may honour it with a perusal, will not, I trust, be discontented at turning over a very few useless leaves, if they afterwards find something in the pamphlet not unworthy their attention.

I shall make no farther Apology for troubling the world with these pages; and I hope the critical reader will excuse such inaccuracies as may occur, and forget the ineliance of my expression in the utility of my design.

I have only to add, that my principal care has been to relate facts; and that I have not, from being wedded to my own opinion, exaggerated any of the appearances of the complaint; the whole was transacted in public, before the ship's company; to many gentlemen on board I communicated my opinion at the time the sickness prevailed; and several of the patients are now in England, who can testify the truth of the following relation.

INTRODUCTION.

A SHORT

Description of the LIVER.

THE Liver, it is well known, is the largest gland in the human body; it is of an irregular form, and occupies almost the whole upper part of the abdomen. Its greatest diameter is at its superior part, where it becomes very thick, and is rounded away so as to correspond with the shape of the diaphragm, with which it comes in contact. The exterior part of it is convex and very smooth; the interior concave, fitted to receive the stomach, duodenum, colon, and pancreas, upon which it rests; it has several depressions on this side, in order to give a passage to a

number of large blood vessels which are destined for its use.

THIS viscus is kept in its natural situation by three ligaments, which are all portions detached from the peritonæum, and which fix it above, to the diaphragm, by the ligamentum, suspensorium, to the inferior edge of the same membrane on each side, and to the muscoli recti of the abdomen, by the two lateral ligaments.

THE liver is divided into two parts, the great is the right lobe, and the lesser the left : Its position in the abdomen is oblique ; the great lobe possesses the whole of the right hypocondrium, and the most part of the epigastric region : the lesser lobe reaches down, in general, almost as far as the left hypocondrium : this, however, is not determinate, as it varies in different subjects,

IN a particular excavation, at the interior and inferior edge of the great lobe, the gall-bladder is situated ; it is of a conical form, the apex being superior ; from this proceeds a canal, called Ductus Cysticus, which connects it

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stimulus, in the stomach, as will produce that contractile power, in its lax fibres and coats, which, is wanting, in particular cases, to promote digestion.—The Powder, is more active, and contains, a quantity of the more powerful ingredient; which, will make it produce some very sensible effect, in a short time, after it is taken. This is calculated, as its title expresses, to produce that kind of immediate effect, which will relieve the body, of any surcharge, or load, oppression, and sickness, in the alimentary canal; and, by that means, prevent, (the word prophylactic, is from *προφυλάσσω*, which the Latinists make, *præservo*) rather than remove, any disease, existing in the habit; for, to do that, a gentle and regular use of it, in small doses, is requisite.

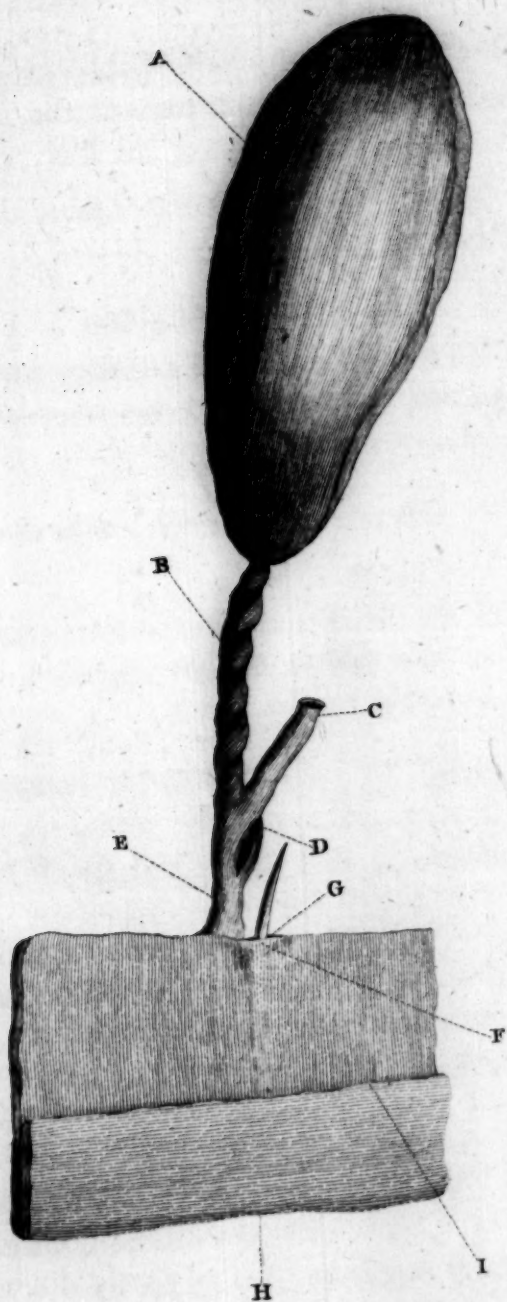
Both the Powders and Drops, are sealed up in marble paper, with the Author's own signature; and are thus distinguished: The Hepatic Essence.—The Prophylactic Powder.

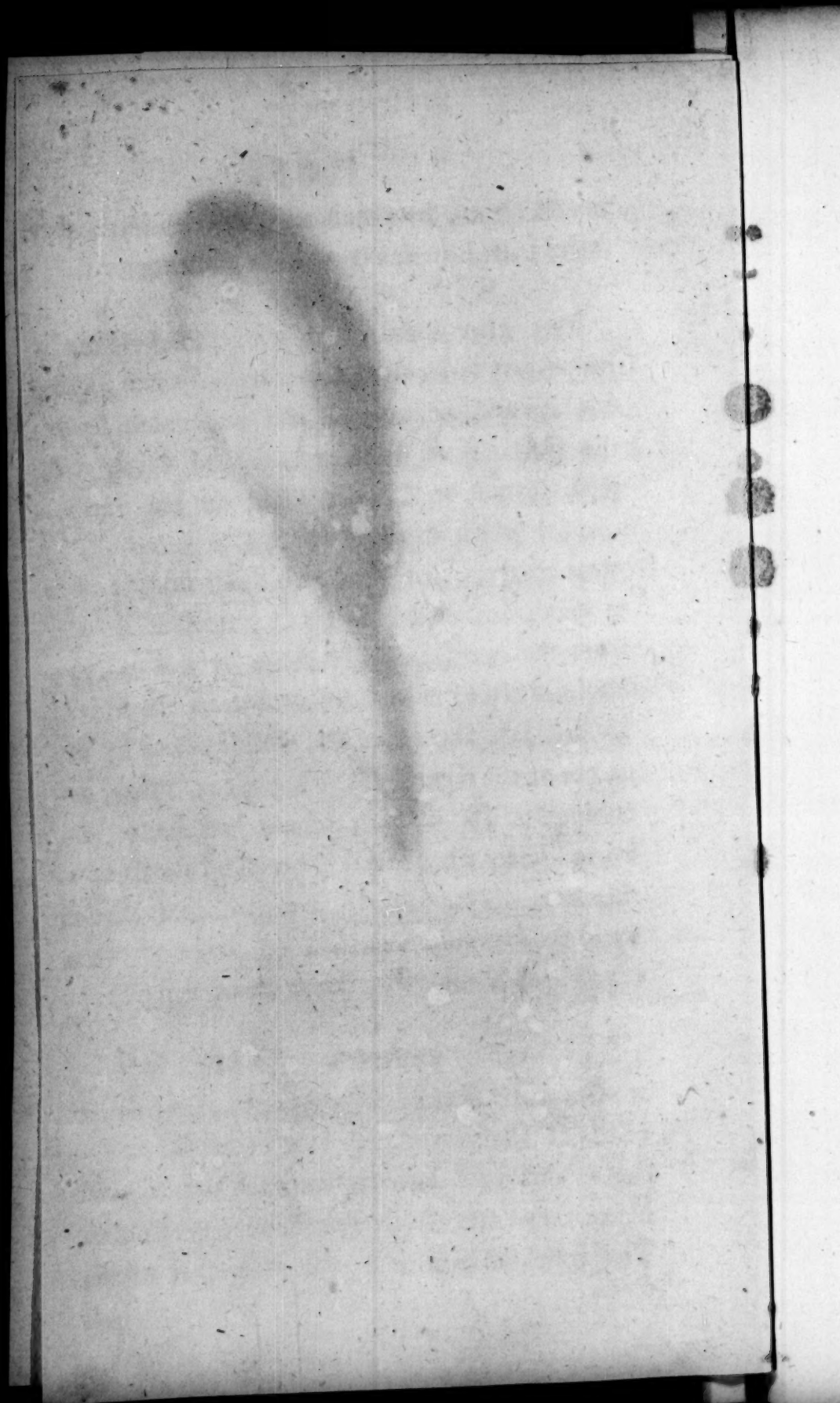
E X P L A-

EXPLANATION OF THE FIGURE.

IT represents, the gall-bladder, and its ducts, together, with a portion of the first intestine, into which, they pour the bile.

- A The gall-bladder.
- B The cystic duct.
- C A part of the hepatic duct.
- D The opening of the hepatic, into the cystic duct, the union of which two, make the *ductus communis cholidochus*. A division of the tube, is made, in order to illustrate the insertion of the former, into the latter.
- E The common duct.
- F The common orifice, of the biliary and pancreatic ducts, opening into the intestine.— Here is a little inaccuracy in the Figure, which, does not represent, the pancreatic duct, so near the *ductus communis*, as it should, consequently, the line, from the letter, is not continued quite so high, as it ought to be.
- G The pancreatic duct, with a probe passed through it, to show, where it opens into the *duodenum*. Both the biliary and pancreatic ducts, unite at their termination, and that forms a kind of tubercle, in the intestine.
- H A part of the *duodenum*, laid open.
- I This line, shows its division, in a longitudinal direction, being partly doubled up.





to the liver, by previously uniting to another duct, called ductus communis choledochus.

THE liver is furnished with blood-vessels in proportion to its size ; these are of three kinds, one arterial, one venal, and one which serves the purposes of both arteries and veins ; and these several vessels are fitted for the various uses for which this vast viscus is designed. The great artery, from whence all the smaller ones proceed, is called Hepatica, and takes its rise from the great division of the cœliac artery ; immediately after its entrance into the liver, it is divided into two branches, distinguished by the names of the right and left hepatics ; These, according to the opinion of the best anatomists, bring chiefly what blood is necessary for its nourishment. This blood is returned to the heart by a considerable vein sent off from the vena cava, which also takes the name of hepatica.

THE vessels, performing the office both of arteries and veins, take their origin from all the veins of the alimentary canal and its appendages, and unite into one common branch, just before they enter the liver, called the vena porta. This vessel, as soon as it penetrates that viscus,

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is divided into an infinite number of minute ramifications, which carry the blood to every part of it, and in their passage they frequently inosculate with the branches of the other vessels. By this vein, which is remarkably large, all the blood of the stomach, spleen, pancreas, intestines and mesentery, is brought to the liver. The branches of the porta terminate in another kind of vessels called *pori biliarii*; these again all unite into one common trunk, nominated *ductus hepaticus*, which, on its passage to the intestines, is joined by the *ductus cysticus*, which comes from the gall-bladder, when it takes the name of *ductus communis choledochus*, and is inserted in the duodenum, a little way from the pylorus, by a very winding passage. The liver is also furnished with lymphatics and nerves.

THE modern physiologists agree, that the end which the great quantity of blood brought by the *vena porta* to the liver, is intended to accomplish, is to form that necessary fluid called bile. This particular change it is supposed to undergo in the *pori biliarii*; but it is well prepared for that purpose long before it reaches them; for it proceeds in so very sluggish a manner,

ner, that most of the aqueous parts are absorbed, and it becomes of a very viscid consistence.

IN some mode, not very clearly explained by the best enquirers into the operations of nature, a part of this fluid is secreted into the gall-bladder, where it undergoes a considerable alteration, and is at proper periods discharged by the ductus communis choledochus, into the intestines.

THE hepatic bile has more tenuity, is lighter coloured and less bitter than the cystic. The fluid secreted into the gall-bladder, on account of its tranquil situation, and remaining there for a considerable time, has more of its aqueous parts absorbed; hence it acquires a degree of rancidity, becomes high coloured, very bitter, and is peculiarly useful for stimulating the intestines, in order to keep up their peristaltic motion.

THE bile is a saponaceous fluid, and consists of a solid substance dissolved in water. This is proved by evaporation; for the aqueous parts fly off in a heat of 112° of Farenheit's thermometer. The solid matter may be diffused again in water, in a gentle heat.

BILE is soluble in any quantity of water ; when much is added to it, it readily becomes putrid ; but in the natural state in which it is found in the body, it is not more so than any of the other fluids.

BILE is decomposed by acids, which precipitate from it a resinous substance ; this is highly useful, and it acts powerfully as a stimulant, and keeps up the peristaltic motion of the intestines : upon distillation it yields a large proportion of empyreumatic oil. It is of a yellow colour, and bitter taste. It immediately dissolves all resins and gums, and is therefore well fitted for rendering into an uniform mass all the different substances which are taken into the alimentary canal *.

* Vid. Fordyce's Elements of Physic.

CHAP. I.

A succinct Account of a DISEASE incident to the LIVER, &c.

SECT. I.

WE shall here endeavour to describe the disorder which afflicted the Seamen on board the Earl of Middlesex, during the latter part of her last voyage. Our people, in the passage from China to St. Helena, (which was from November—70 to March—71,) enjoyed in general a good share of health, there being only two men in that time who suffered from an obstinate intermittent, which had attacked them while the ship lay at China, and which resisted every medicine that was administered. We were in want of every kind of refreshment when we arrived at St. He-

lena : Our salt provisions were become very bad, and our water, though we had abundance of it on board, was foul and putrid. Notwithstanding these inconveniencies, the men continued healthy, except the two above-mentioned, and even those were somewhat better when we arrived at our port.

AT St. Helena we expected to have had all our wants amply supplied, but those hopes were of short duration; for we found the inhabitants themselves involved in great difficulties; the season had been remarkably dry, the herbage was mostly destroyed for want of moisture, and the black cattle, on account of the scarcity of water, and bad quality of the little there was, were attacked with a disease which carried the greatest number of them off. From these unfortunate circumstances we were not supplied with either fresh meat or vegetables, by any means in proportion to our wants, nor indeed any thing like the quantity, that by the company's orders, the East-India ships are usually furnished with; and even the small portion we did obtain, was of a very indifferent kind.

WE left St. Helena on Sunday the 17th of March 1771, when those who had been valedudinarians were recovered, so as to do their duty on board, and the rest of the ship's company remained well 'till April the fifth.

AT that time, Norman M'Cloud, one of the foremast-men, was seized with a violent catarrh, attended with a feverish disposition. This man was about fifty-five years of age, of a heavy slothful disposition, and one of those who had so long laboured under an intermitting disorder. About this time, being near the equinoctial line, we had either light airs or calms, or squalls with smart showers of rain, which kind of weather continued till we got the trade-wind *. The moisture of the air prevented his cough from receiving relief, and the symptoms seemed rather to increase; his pulse was quick and tense, he had frequent flushings in the face, was exceed-

* The trade-winds continually blow from the same quarter in certain longitudes, on each side of the equator, generally within the tropics; those which prevail on the north-side of the line come from the north-east, or at least never vary more than two or three points on each side of it; those on the south-side, blow from the south-east point in the same manner.

ingly thirsty, and he complained of a violent pain in his breast. As these appearances were attended with a considerable degree of fever, and as the disorder in his breast was accompanied with a difficulty of respiration, notwithstanding his chronic habit of body I thought it absolutely necessary to take from him a small quantity of blood. I should not have taken this step, considering his state, but from the necessity there was to give immediate relief to his laborious breathing. The end proposed was obtained for the present, by the above treatment; but his cough and pain of the breast still continued. For these the lac ammoniacum, with expectorants, and demulcents, &c. were administered. The blood was in a dissolved state; upon standing some time, it became of the consistence of a thin jelly; and though it remained quiet for a considerable time, yet no separation took place; there was nothing of a black or grumous nature in it, such as is often found in that fluid, in an advanced state of putrefaction; nor did it particularly adhere to the sides of the vessel, a circumstance which usually occurs when it is drawn from persons afflicted with putrid diseases. This disorder continued to harass him for a considerable time, without discovering any symptoms

toms of immediate danger, but obstinately resisted all endeavours to procure him relief. At length, after he had been much weakened, I ventured to try the bark in very small doses, to which a little native camphor was added; as in some of these kind of coughs in a warm climate, I had often found it attended with singular advantages. And here it was so far useful that it in a great degree alleviated the feverish disposition, which was never very troublesome afterwards; the flushings went off, and the violent drought for the present subsided. It is to be remarked, that the use of the bark did not by any means affect the difficulty of breathing, or increase the tightness of the chest.

ON the 20th, he complained that his belly was swelled, and felt hard; upon examination, I found the abdomen very much enlarged, his legs also considerably tumified, and to appearance œdematous, for they pitted upon pressure, and the impression of the finger continued for some time afterwards. His difficulty of breathing returned again with great violence, and the cough and other symptoms were as distressing as ever.

FROM a consideration of every circumstance which now attended this patient, comparing the appearances of his disease with the state he was in, previous to its attack, and observing in particular the gloss that was all over the skin of the abdomen, I conjectured it was an incipient ascites; and what contributed to confirm me in this opinion was, the thirst which distressed him, and which at this period came on again, and was almost insupportable. At the commencement of the disorder; and notwithstanding these appearances, I could not observe, upon the strictest examination of the abdomen, the least undulation which might have been reasonably expected to have been felt, as that part was swelled to an enormous size. He could now drink no other kind of fluid, with any degree of satisfaction, than cold water, which he swallowed with great avidity, and it was with the utmost regret he would suffer the cup to be taken from his mouth; on this the water was forbid, and I desired his attendants only to wet his mouth as occasion required it; for his common drink, I ordered him a little rice gruel, with a small quantity of lime juice, made pleasant with sugar.

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His appetite hitherto continued good, but he could not retain any thing solid upon his stomach, such aliment he threw up again immediately; but rice boiled thick, and all kinds of pulps he had a relish for; and in order to support him and render them more palatable, there was always a little wine and sugar put in them. I attempted twice to exhibit some of the drastic purges, with calomel, but these threw him into great pain, and I was obliged to desist prescribing them.

ABOUT this time, there were several other men seized in the same manner as M'Cloud, and many, though differing from him in age, constitution, and a number of other circumstances, yet all had exactly the same symptoms. I now began to consider the matter as very serious, and to endeavour to account to myself for such uncommon appearances. I could not conceive that all these men laboured under an ascites, as there were no predisposing causes to be indicated for most of their complaints, and as I could not perceive an undulation in any of them, upon the most accurate scrutiny, I imagined it could not be a dropical disorder. Upon recollecting that

that the provisions they had been living on for a long time were very bad; that we had received no supply, nor had any adequate opportunity for refreshing at St. Helena, I suspected it might possibly be a species of scurvy. It is true, there were many of the pathognomic symptoms of scurvy wanting, such as putrid gums, ulcerated legs, &c. yet as their mode of living might well be supposed to produce such a disease, and as this was attended with many of the same kind of appearances, I ventured to pronounce it the scurvy, and immediately began to treat it as such.

At this juncture, M'Cloud's cough, difficulty of breathing and swelling of the belly continued to increase, and he was subject to frequent swimings of the head, and laboured under an universal langour. I kept him upon a farinaceous diet, and some lemonade was given him every day, but we having little of these articles, were obliged to be very sparing of them, and to supply the deficiency with the acid elixir of vitriol.

THE difficult respiration soon became the principal object of distress, which increased to

so great a degree, that he could not lie in his hammock, and was obliged to be supported continually by a man upon a chest, in a reclining posture, in order to be able to breathe at all.

ON the 7th of May every morbid symptom became greatly aggravated; his respiration was carried on in the most laborious manner; his ribs were alternately lifted up and down with the greatest violence, and he afforded a spectacle of the most shocking misery; the symptoms of death were evidently now upon him: He had laboured under the disorder upwards of a month; but from about the 15th instant, it had been particularly grievous, the swelling of the abdomen at that time becoming very troublesome; this extended chiefly upwards, and caused a most uneasy sense of tightness about the region of the præcordia.

ON Friday the 10th of May, about noon, he departed; a little previous to his death, he had a number of violent spasms, and went off evidently by suffocation, with violent croaking inspirations that might be heard at a great distance.

ON the evening of that day, his body was freed from the filthy clothes which were about it, and was carefully washed. Upon this occasion, I took particular pains to examine every part, in order to discover whether there were such things as spots, extravasations, or any ulcerations, which might have escaped my notice; but I could not perceive any such, on which account, it was with much reluctance, I called the disorder, of which he died, by the name of scorbutic; as it was most similar in its diagnostics to the scurvy, and had more of its symptoms than any other disease I was acquainted with, I returned him on the list as dying of that complaint.

S E C T. II.

HERE follow the names of the men who at this time laboured under the above described disorder, with some remarks upon the general symptoms:

RICHARD JOHNSON, THOMAS SMITH, JOHN BOND, JOHN BESANCO, JAMES PATTERSON, TIMOTHY CUNNINGHAM, CHARLES SLATOR, RICH-

FAR, JOHN WYAT, JOHN REYNOLDS, JOHN GREEN, HAIL MASON, CHARLES WILLIS, ROBERT WILSON, THOMAS GUNNING, JACOB ELDERS, JAMES BONFIELD, THOMAS PERRIN, PHILIP HALL, CHARLES RICHMOND, JAMES BROTHERS, THOMAS KERR, JOHN COOK, CHARLES OTWAY, THOMAS ADAMS, JOHN CORDEY, OWEN CARTY, &c.

THE appearances of disease were nearly alike in all these men, though the greatest number of them were of different ages, constitutions, and degrees of health. For several days before they found themselves unable to continue at their duty, they complained of a sense of tightness across the breast, of a giddiness in the head upon the least increased motion; of their legs being considerably swelled, and pitting upon pressure; they could not eat with any satisfaction the smallest quantity of solid meat, had pains in the small of their backs, were very thirsty; and that their bellies were much larger than in a healthy state: this tumefaction was general, and I could not perceive any thing that appeared circumscribed in it; but none of them

complained of either sore gums, or of having spots on any part of their bodies, for upon these heads I was very particular in my enquiry; their pulses were very small, and in many, tho' the florid appearance of their faces indicated an increased circulation, the stroke of the artery could hardly be felt: Befanco's and Bond's faces were particularly high coloured, though their pulses were small; others were more pale, but not one of them had the least yellowness either in countenance or in any of their discharges, except Cordey, who had some time before laboured under a jaundice.

As the enlargement of the abdomen increased, so did the difficulty of breathing, both of which became very troublesome in a few days after their confinement; the sense of oppression about the præcordia, and stricture immediately under the ensiform cartilage were almost insupportable, and many of them were seized with vertigoes to such a degree, as to be unable to keep themselves in an erect posture, and obliged to lie down in order to avoid fainting; some, upon such an occasion, had violent palpitations of the heart. At this time, I continued to think the disease of the scorbutic kind, and therefore
forbid

forbid them the use of flesh meat, and put them upon a farinaceous diet; such as boiled peas, calavances *, rice, &c. which they could digest tolerably well, and which created no uneasiness in any of their stomachs, except Bosanco's, who from the first had a nausea, that obliged him to reject all kinds of food, with an insatiable thirst. He was also very constive, which was not the case with any of the rest, for they had a stool every day; it was indeed small, and of a whitish colour, such as is generally seen in jaundiced patients.

THESE were the general appearances the disease put on in most of the people; but a few were attacked in a particular manner, from labouring under other diseases when it came on: but those complaints were quickly removed, and the above became the primary consideration, at the same time, however, retaining some of the symptoms of the former complaint. It was really surprizing to observe the progress of it in these cases, for the disorder was of so anomolous a nature, that it changed in the morning from the appearances it put on in the evening, and seemed to resolve all other complaints into itself.

* A kind of small beans.

THIS was remarkably the case with Smith, for he was attacked with a diarrhea in the beginning of April, which in a short time degenerated into a dysentery, so severe as to give me apprehensions for his life; his pulse was quick and tense, and the discharge considerable, attended with tenesmus and great pains of the bowels; that complaint was changed in the course of one night, and no signs of the dysentery left, but like the rest, next morning he laboured for want of breath; his belly and legs began to swell, and the disorder became very distressing. But a full account of the disease, as it shewed itself in him, will come in more properly afterwards, as it did not attack him till almost the last. The same thing may be also said of Cordey, of whom let it suffice to remark that previous to the appearance of this disorder, he had laboured under a jaundice, and the icterical pains continued with the new disease.

FOR the farther illustration of the various appearances, which this complaint put on in its whole progress, I shall here give an account of it in two more cases, in order to shew the great similitude

similitude of the symptoms in the different patients.

JOHN BOND was about twenty-five years of age, had not suffered from any illness during the early part of the voyage, except at China, where he had been slightly attacked with an ague, which speedily gave way to the bark and corroborants. He was of a sanguineous complexion, and very athletic.

ON Monday the first of April, he complained of pains in his bowels, attended with a nausea and purging, something like an approaching cholera morbus, for which an emetic of ipecacuanha, with a grain or two of tartar in it, was given him that evening. This procured a discharge of a considerable quantity of viscid bilious matter, and removed the nausea. The diarrhoea proved very troublesome in the night, and was attended with considerable tormina. The next morning a little rhubarb was prescribed for him; and after he had been smartly moved by it, it was afterwards continued in small doses: By this treatment his pains were much alleviated, but the purging still remained,

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ON the morning of the fourth, his pulse was quick and tense, and the complaint in his bowels returned with great violence ; some blood was taken from him, and a small quantity of tartar emetic was added to each dose of the rhubarb, which in a short time removed the feverish disposition. When this was effected, some calomel was added to the rhubarb, the exhibition of which, in that manner, I had often found attended with singular advantages, and here it answered my most sanguine expectation, and in a few days carried off every painful part of the disease.

ON the tenth, the weather being fine, I ordered him to return to his duty, and he continued at work till the twentieth. The morning of that day, he came to me, and complained that for some ^{time} past he had been subject to a giddiness in his head when he went up the shrouds, or moved about very quickly ; his legs he said also were a good deal swelled, and retained the marks of his fingers when he pressed upon them. As the weather was fine, and as the disorder was supposed to be an incipient scurvy, it was thought better for him to be kept in
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in exercise ; I therefore desired he would continue upon deck ; but spoke to the commanding officer to indulge him with an exemption from hard labour. In this manner he went on till Wednesday the twenty-fourth, when he assured me he could do duty no longer, as his breathing was very short, and his legs stiff and sore ; and requested to be entered on the sick list. He was now subject to vertigoes on the least increased motion, with palpitations of the heart, and his difficulty of breathing was become singularly distressing ; his belly was considerably enlarged, and his legs swelled very much, particularly about the ancles ; his face was extremely flushed, and his eyes languid and heavy ; his appetite very bad, and he could not retain any solid food upon his stomach ; in short, in all other circumstances, he was exactly in the same situation as M'Cloud ; he had a stool every day, but his skin was rough and dry ; his pulse was low and soft, and yet he was afflicted with an insatiable thirst, which had attacked him from the time the diarrhea left him.

THIS man was, with the others, as before mentioned, put upon a farinaceous diet ; and as

in their situation, little medical assistance could be afforded, I endeavoured to procure them such things as they seemed to have the greatest inclination for, a circumstance I apprehend of the first consequence in the cure of diseases; and at sea in particular, where the poor men are exposed to numberless inconveniencies, humanity calls upon us to exert ourselves in rendering, as comfortable as possible, their unhappy state, and to indulge them as far as is practicable. There were at this time, as has already appeared, upwards of thirty men ill; many of them were reduced to great weakness, and a general despondence had taken possession of them. In order to support them it was necessary not only to give them every encouragement, and to alleviate their distresses as much as possible, but to administer something strengthening and nutritious. For this purpose nothing could have been attended with so much advantage as a small quantity of red wine; but this cordial the East-India ships are not supplied with; and it is not reasonable to expect that commanders can, at their private expence, afford what is necessary for such a number of sick. In the course of the voyages which these ships make, their
 seamen

seamen are subject to such disorders as leave great weakness behind them, and where the recruiting powers of wine would be particularly salutary. The best medical writers agree that it is to be preferred to every kind of medicine in such cases; how unaccountable is it then that so respectable a body as the East-India company should ever suffer their ships to sail without laying in a stock of wine for the use ^{of} valetudinarians, by taking care to provide which, I am confident they would save a number of the lives of their best seamen, a circumstance of the first consequence, not to them alone, but to the community in general*.

* Bengall, in particular, is annually the grave of an incredible number of seamen. The disorders which most frequently attack them, are billious and intermitting fevers; and these often, by producing excessive weakness, bring on a dysentery, or some of the chronic complaints which most commonly end in death. This might often be prevented, if they were allowed, according to medical restrictions, a glass of generous wine, nothing would prove so invigorating, or so powerfully prevent them from being affected with the cause of such kind of diseases.—Sunt enim hæc efficaciam & quæ facilius omnia quæ de vino spiramus, accelerent, sufficientia fortificare, & totam relevare habitudinem corporis, omni etiam parti atque particulæ sese inferre, & per omnes, tenuis vias celeri potu percurrere; alia quoque nutrimenta secum trahere, & adducta corporibus insinuare. Vid. Cælius Aurelianus, p. 168.

It has been previously remarked how similar the diagnostics of this disorder were in all those afflicted with it: The symptoms in the patient, of whom I have been speaking, were nearly the same as those which appeared in M^r Cloud, only that he had no cough: like him, his abdomen in a few days increased to a very great size, and the difficulty of breathing became intollerable; this made me apprehend there was a collection of water in the thorax, and think it adviseable to make some kind of evacuation; I therefore prescribed him a small dose of pulv. jalapii, but it excited so great an uneasiness in his stomach, that he threw it up again immediately, and it heightened, for the present, the difficult respiration; on which account nothing of that kind was ever exhibited afterwards. Indeed cathartics were not required to any of them except Besanco, as none but him were costive in any part of the disease. The disorder daily gained ground, particularly his difficulty of breathing, which, the twelfth of May, was become so very laborious as to give me reason to fear it would soon carry him off.

The

The thirteenth, the symptoms were nearly the same. The fourteenth, the quickness of the respirations rendered it difficult for him to express himself; but every look, every gesture, called loudly for relief: In short, the scene which now presented itself, was extremely distressing †. On each side of the ship there was nothing to be heard but the melancholy sounds occasioned by the obstructed respiration of upwards of thirty Men: Nothing to be seen but despondence in every countenance: those who were ill had their fears increased by hearing the struggles of their hopeless neighbours; and those who were well, anticipating their distresses from the apprehensions they formed of soon being reduced to the same situation.

On the fifteenth his spirits were very much depressed, and he was seized with an universal languor: He was supported with some wine and

† There is not any disorder to which the human body is liable that exhibits a more striking picture of distress, than a violent dyspnoea; every muscle about the face, thorax, or any of the adjacent parts, are stimulated to the utmost exertion of their power, in order to inhale a sufficient quantity of that fluid so absolutely necessary to existence, into the cavities of the lungs, when obstructed by disease.

strong

strong chicken broth; but these contributed little relief.

The sixteenth and seventeenth, the symptoms of morbid distress were exceedingly severe, particularly on the evening of the last day, when he had a violent spasm which agitated his whole frame. This was followed, in a few hours, by another; and, at intervals, he was attacked with them from that time 'till his death.

It is very remarkable that, notwithstanding these appearances, his appetite continued tolerably good, and he had a stool every day: But on the evening of the seventeenth, the muscles of deglutition were so much weakened, that he was scarcely able to swallow the smallest portion of aliment, particularly that of a liquid kind.

On Saturday the eighteenth of May, about eleven o'clock, he was universally convulsed; which had nearly carried him off; but he recovered only to undergo his torments a few hours longer, and exhibited a most shocking spectacle.

tacle. The ribs were thrown into violent motion; every muscle swelled with encreasing action, and every inspiration was performed in the most laborious manner.

About one he expired, evidently by suffocation, in the same manner as M^c Cloud had done.

John Befanco was a healthy man, about twenty years of age, of a fresh complexion, and good habit of body.

On Monday the 27th of April, he was attacked with a violent head-ach, and, in his own words, "pains all over his bones." He was costive, thirsty, his skin hot, and his pulse quick. A cathartic was administered, in consequence of which he was considerably relieved.

The twenty-eighth, he was not free from pain, and had a short cough; for these he had some nitrous powders with camphor, which produced a good effect.

On the twenty-ninth, his pains were much lessened, but he complained of his legs being
swelled;

swelled; that his breathing was difficult; and when he used the least exercise, his respiration was uncommonly oppressed: These circumstances he communicated in the evening; and on the 30th I examined every particular; and perceived the same appearances, in some degree, as in the other patients already described, viz. a tumefaction of the umbilical and hypochondriacal regions, a swelling of the legs, of the œdematous kind, receiving and retaining the impressions of the finger, &c. with them therefore, he was considered as a scorbutic; but as the disease in him, was attended with symptoms from which the rest were free, it required a different treatment, which it may not be unnecessary to particularize.

THE first of May, the costiveness returned, for which the cathartic was repeated; the other morbid appearances still continued, though somewhat alleviated. Thus he remained for several days, having the same kind of food, and put under similar restrictions with the rest.

ON Thursday the ninth, he had an appearance of a cholera morbus, being a good deal

deal purged in the night, and having a nausea at his stomach. For these an emetic was exhibited, which removed the one, and palliated the other.

ON the tenth, he was very feverish, had a violent head-ach, a great oppression about the præcordia; his pulse was quick, tense and low; and he was exceeding thirsty: Some of the febrifuge powders, with a small proportion of the tartar emetic, were prescribed. The symptoms continued nearly the same for that day.

ON the eleventh, he was considerably relieved from his head-ach and other pains; but the difficulty of breathing began to discover itself, and became very troublesome.

ON the twelfth, the feverish disposition returned, and he had a sense of plenitude about the præcordia. He was costive, and the tumefaction in general encreased considerably: Some rhubarb was given him, which procured him a discharge, but the feverish disposition remained. After the rhubarb had acted as a cathartic, it was exhibited in small doses, with one third

of a grain of tartar emetic added to each, in order to keep up the peristaltic motion of the intestines, and to remove the feverish disposition. This last intention was not answered, for, on the thirteenth, all the diseased appearances were very severe: about twelve o'clock the nausea returned, and every thing he attempted to swallow excited a violent retching.—He had not, for several preceding days, attempted to eat any thing, but his thirst was always excessive, and now his stomach was become so irritable, he was distressed to the greatest degree; his mouth was dry and parched; he could only venture to wet it frequently with a little water, without swallowing any. A relaxant, with an opiate joined to it, was administered to him, in hopes of removing the disposition to vomit, without effect; but this very harrassing symptom at last gave way to a solution of sal. absynthii thrown into the stomach in the act of effervescence, but the fever remained; on which account the relaxants, with an anodyne, were continued: By this practice the irritation was much lessened; he could retain fluids on his stomach, and was able to eat a little soft food.

ON the fourteenth, he was free from every painful symptom, except the difficulty of breathing, which was extremely severe. The former medicines were continued.

ON the fifteenth, he complained of a violent head-ach; the vomiting returned when he attempted to take any thing solid; and he could retain but a very small quantity of fluid, and even that created an uneasiness in the stomach. The saline draught was repeated, which in some measure lessened this complaint.

ON the sixteenth, he continued almost in the same situation as the day before, without any particular aggravation of any of the symptoms. The tumefaction seemed every day to encrease, and with it the difficulty of breathing, which was now become barely supportable.

ON the seventeenth, he displayed a miserable appearance: His attempts to inflate his lungs, were feeble and ineffectual; his ribs laboured with wearied efforts; his tongue hung out of his mouth; the florid complexion vanished; a general prostration of strength ensued; his pulse

was entirely subsided : his extremities cold ; his eyes sunk, and the facies hypocratica came on : In short, every symptom portended a speedy dissolution, and yet, in that state, he continued till the evening of the next day : In the mean while he was supported with wine, and such cordials as were most invigorating,

ON the morning of the eighteenth, his spirits were somewhat raised, and he eat, with great difficulty, a little chicken. His languid struggles for breath continued till eleven at night, when, being entirely exhausted, they ceased. He had no spasms as the other two men, but, like them, he went off by suffocation.

S E C T. III.

THE death of the two men, whose cases have been related, and the dangerous situation to which many more were reduced, afforded a very alarming prospect. The symptoms of the disorder were very singular, and it was difficult to determine of what class it was, or to form any just judgment from whence it originated.

AUTHORS

AUTHORS who have treated pathologically of the scurvy, describe a number of putrid appearances, as ulcerated gums and legs, spots on various parts of the body, a wan or fallow countenance, frequent extravasations, obstinate costiveness, and, in general, they considered the disease as depending upon putrefaction. Dr. Lind, indeed, in the postscript to the last edition of his excellent Treatise on the Scurvy, did not observe the bowels to be in so putrid state as had been described by other authors*. But Rouppe, in every instance, found the symptoms of mortification general, and the blood, in all his cases, discovered more or less of a tendency to it †.

Dr. Lind's account of his examination of the blood of scorbutics, does not perfectly coincide with Rouppe's, but both agree in describing a number of putrid appearances which always attend that disease; the most material of which have been particularized above.

* Vid. postscript, p. 145, & 512.

† Vid. Rouppe de morbis navigantium, p. 145, &c.

IN the disorder of which we are treating no such circumstances occurred; there were no putrid gums, ulcerated legs, or spots on any part of their bodies; none of them were costive, except Befanco, and their faces, in general, were more florid than usual: Besides the absence of these symptoms, Befanco's body was kept in that hot climate upwards of twenty-four hours without becoming in the least offensive; whereas the bodies of those who have died of the scurvy become disagreeable in a very few hours*, and are often very much so, even before their death.

Thus innumerable objections lay against its being of a scorbutic nature.

Supposing it have to been a dropical complaint, unsurmountable obstacles presented themselves. Where a tumefaction of the abdomen takes place to so great a degree as happened in

* Rouppe, speaking of the inconveniencies which attended opening the bodies of men, who died on board a ship, mentions, that — *insuper via ultra horam potui servare cadavera, quin jam tempus adfuerit, quo ea in mare projici debebant.* Vid. De Morb. navigan, p. 144.

this

this disorder, from a collection of water, it will always be found to undulate. The difficulty of breathing afforded a suspicion of water being in the cavity; but then the quantity of urine in dropsies is always decreased as the disorder gains ground, and that circumstance in the above cases did not subsist. That complaint most commonly arises from a general relaxation of body: Here men in high health, were as bad as those who were most weakened by previous diseases. The dropsy comes on gradually, and the great difficulty of breathing is a subsequent symptom: Here both swelling and obstructed respiration came on at once, and quickly became very severe.

As upon a proper management a great number of lives depended, it was thought a matter of no little consequence to be able to ascertain from whence the disease originated; without which it was not possible to adopt any certain mode of treatment. The most probable means of arriving at this, appeared to be an inspection into the different viscera of one of the deceased; which was proposed, and thought expedient; and the body of John Bond, the second

cond patient who died, was accordingly opened, when the following particulars appeared on dissection*.

The external parts (as has been before mentioned) were free from every kind of spot or blemish.

Upon dividing the abdominal muscles, we found the parts immediately underneath in a perfectly sound state; we then removed the peritonæum, and omentum; the intestines, neither great or small, had any preternatural appearance; they only contained a thin, whitish fluid, and

* Here a circumstance occurs, which may not be thought unworthy of attention. It is universally allowed, that the surest means to arrive at the cause of diseases, is the opening and inspection of morbid bodies; by which either a rational theory of the disease can be formed, or a proper mode of cure pointed out. This practice is, nevertheless, too much neglected, particularly on board ships: As the Surgeons are restrained from it by an apprehension that the seamen will raise a cabal, and endeavour to prevent it, from a natural abhorrence of such a proceeding. Their prejudices are, no doubt, very great; but in cases of emergency, they are, in my humble opinion, easily overcome; and I have ever found the surgeon the more respected by them afterwards, for taking these methods to investigate the origin of any of the alarming disorders which are peculiar to the eastern parts of the globe.

and the former seemed to be distended with air. The stomach was also in a sound state, but its contents were nearly similar to that of the intestines.

WHEN these viscera were taken away, the next part which presented itself to view was the liver. This viscus did, indeed, make a very extraordinary appearance: It was enlarged almost beyond imagination; it occupied the whole of both hypochondria, and descended a considerable way into the hypogastrium: The superior part of it had thrust the diaphragm up into the thorax.

IN order to inspect the viscera of the chest, the sternum was taken off, and then the convex part of the liver appeared higher up in the thorax than the ensiform cartilage: It had compressed the lungs, particularly the right lobe, which was entirely collapsed, and covered with white spots; had a number of tubercles on it, and made a very morbid appearance: it was not the size of a common tennis-ball. The left lobe was much less than in a natural state, and covered also with white spots.

PART of the liver, which extended to the thorax, was of a particular form, resembling a cone, rather obtusely pointed, about four inches diameter at its base, and near three inches high; it arose from the superior convex part of that viscus. An incision was made into this gibbous body, and the blood issued from it with an elastic force, as if an opening had been made in the aorta, or some large vessel. It had nothing preternatural in its appearances; was very viscid, though not of that darkish red colour the hepatic blood is usually observed to be of; and the liver in general was more florid than is commonly perceived. We now examined every part of this viscus, and could not discover the least vestige of disease besides the singular enlargement above-mentioned: there was nothing like an adhesion, or appearance of previous inflammation.

We then proceeded to the gall-bladder; this was in its natural situation, but quite turgid with bile; and the ductus cysticus was stuffed with an indurated matter in such a manner as to prevent any of that fluid from passing through it,

it, even when pressed upon with some violence. The external coat of it was perfectly dry, nor was there any thing to indicate the least probability that there had been a transfusion through the membranes. The bile which it contained was very viscid, and of a dark green colour.

THE spleen and pancreas had no preternatural marks about them: The same thing may also be said of the kidneys, bladder, and all the other contents of the abdomen. The heart was in its natural situation, and discovered nothing morbid: the pericardium was likewise free from disease; nor did it contain a greater quantity of fluid than is generally found there.

As the nights were now become very short, and the dissection was attended with such inconveniencies as naturally arise on board a ship, we were obliged to content ourselves with the examination as above related, our time not admitting of a more accurate investigation. It would, indeed, have given us great pleasure to have been able to have weighed this enormous liyer (not less ponderous, probably, than thirteen or fourteen pounds;) to have minutely enquired

enquired into the obstructing cause in the cystic duct, and into something of the same kind, which there was reason to conjecture also took place in the other ducts.—This would have been highly useful, and tended more clearly to have pointed out the original cause of this strange appearance; though what we were able to inform ourselves of, was of great advantage, and led to an explanation of most of the previous distressful symptoms.

THE immediate causes of death in the three cases before described, was no longer difficult to be accounted for upon physiological principles: The preternatural enlargement of the liver had evidently made a pressure upon the lungs, impeded the respiration, and at length occasioned them to collapse; and hence the final suffocation. This great increase of size, also extended so far backwards as to impede the passage of the blood to the extremities, through the aorta, and to prevent a free return of it from thence by the large veins. This was sufficient to account for the swelled legs, stiff joints, languor, and frequent giddiness; so great a quantity of blood derived to this viscus, must have

have deprived many of the other parts of what was necessary for their nourishment; and the head, in particular, must have felt the consequences of the interruption to its course, which appeared by the vertiginous state of the unfortunate patients.

I SHALL not take upon me to determine the causes of this uncommon derivation, or presumptuously attempt to establish any hypothesis of my own from it, but only beg leave to offer the following Queries to the consideration of the reader:

I. MIGHT not the obstruction in the biliary ducts, extend to the pori biliarii, and so prevent the blood brought to the liver by the vena porta, from either being taken up, or going through the necessary changes for becoming bile?

II. MIGHT not this obstruction cause the blood, poured in from all the veins of the alimentary canal and neighbouring viscera, to accumulate in the branches of the porta, and the viscus itself being a soft substance, might not both the
vessels

vessels and viscous, give way sooner than the obstructing cause, and by these means the liver become enlarged to so extraordinary a size ?

III. MIGHT not this obstruction arise from calculi, or some indurated matter formed in the biliary ducts ? *

WHATEVER objections are made to these queries will give me little concern, as I only propose them to the reader to account, in some degree, for the diagnostics of a disorder which, perhaps, time and experience may evince, have partly arisen from another source. It was sufficient to know that the liver was enlarged to a very great size ; and that, by its pressing upon the blood vessels and lungs, the fatal evils before described were occasioned ; that this tumefaction was produced by a derivation of blood to that viscus ; that the excretory and biliary ducts were obstructed, and of course that the bilious

* It is very probable calculi, or some indurated matter, might have been produced by the coarse rice which the people had long been accustomed to use as bread, and which had always a quantity of dust and gritty matter in it ; this the cooks, &c. could never be prevailed on sufficiently to clean, from the difficulty that attended the undertaking.

secretion was not properly carried on. The indications from hence plainly were, that, first, the quantity of blood in the system in general should be lessened, in order to have a smaller portion of it returned to the lungs, to enable them to act more effectually. Secondly, endeavours should be made to remove the obstructing cause from the vessels appropriated for the formation of bile. And, thirdly, means should be used to restore the intestines to their peristaltic motion, which I apprehended were much weakened as well from not having a sufficient quantity of the stimulating bilious fluid deposited in them, as from being pressed upon by the increased size of the liver. These salutary purposes could only be obtained by phlebotomy and alterative saponaceous medicines, to which it was necessary to add a cathartic that would act chiefly on the intestines, and produce an increase of the peristaltic motion.

THE above practice was accordingly adopted, and the next morning the men who laboured under the, disease had, in proportion to their strength, a quantity of blood taken away, and pills formed of soap, calomel, and aloes, were prescribed
for

for them *. The effects produced by which, will be faithfully related in the next chapter.

* My intention by the soap, was to render more easy the passage of any calculi that might be formed in the biliary ducts, and to expedite the biliary secretion : by the calomel, to procure a discharge of every offending matter in the first passages, and to act as an alterative upon the system in general ; and by the aloes, to stimulate the intestines, and produce a brisker peristaltic motion.

C H A P. II.

A RELATION of a successful Method of treating the foregoing Complaint, exemplified in a Number of Cases.

S E C T. I.

C A S E I.

JAMES Patterfon, was a quarter-master, about thirty-five years of age: his constitution was greatly impaired by a very severe attack of what is called the marsh fever while we were on the south-west coast of Sumatra, in the month of October 1769. First the disorder put on the appearance of an intermittent, and proved extremely obstinate: In the course of three months, which it continued, it resisted every kind of medicine, and during that time it exhibited all the types of that disease. After it was subdued, he was still subject to returns of it upon the smallest exposure to cold, damps, &c. every change of the moon, and always when he was guilty of the least irregularity.

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In

In the passage between China and St. Helena, he had sustained several attacks of that disorder; but at St. Helena he in a great measure recovered his health and spirits*, and continued well till April the 28th, when he was seized with the disorder which is the principal subject of this Treatise; it was attended with the same symptoms as have been before described; but the swelling of the belly and legs came on, at first, without any previous cough or feverish disposition.

On the 19th of May, the morning after Bond's body was opened, his abdomen was enlarged to an extraordinary size; his legs very much swelled, and his respiration exceedingly laborious: His pulse was low and languid, and he was obliged to have himself supported in a reclining posture, in order to be able to breathe: In short, his situation was a very dangerous one, which called for speedy relief, and without which little expectations could be formed of preserving his life.

* This fever was removed by a new and efficacious substitute for the bark, an account of which will hereafter be laid before the public.

NOTWITHSTANDING these circumstances, there was nothing that afforded the least prospect of relieving the great difficulty of breathing, but lessening the quantity of blood returned to the lungs; I therefore opened a vein, and, while the blood was flowing, kept my finger upon the artery of the other arm: As the fluid came away, his pulse, which was before so languid as scarcely to be felt, became more full and distinct, and his strength sufficiently warranted the loss of twelve ounces. The following pills were immediately afterwards exhibited *.

℞ aloes socotrinæ semunciam,
 Pulveris jalapii drachmam,
 Mercurii dulcis,
 Saponis veneti, āā drachmas duas.
 Balsami locatelli, q. s. fiat massa,
 Ex cujus singulis drachmis, formentur pilulas
 duodecem.

This was the form made use of for all the patients, and calculated so that the reader will

* Here it must be remarked, that our aloes were almost expended, and it was necessary to substitute some jalap where they were deficient.

perceive each pill contained about one grain of calomel.

PATTERSON'S blood, upon standing quiet some time, separated into serum and crassamentum; but the former very much abounded; the latter put on the form of the vessel it was in, and was pretty firm: in that respect it was better than could have been expected, considering what he had suffered from the previous intermittent.

THE immediate effect produced by the bleeding, amply justified the practice, and had the most happy effects, for his disorder appeared instantly palliated by it, and he breathed with considerable ease. He took soon afterwards two pills. These did not produce any effect; a third was therefore given him in the evening, and about nine o'clock he took another; his breathing, however, continued very free the whole day.

ON the twenty-first, in the early part of the day, the appearances were still favourable; but towards the evening, he had a slight increase of the disease: He had no motion, and three more pills were given him.

ON

ON the twenty-second, he was smartly worked, notwithstanding which the calomel affected his mouth, causing a little tenderness in his gums, but his difficulty of breathing was greatly removed, and the swelling of both belly and legs considerably lessened. On that day the pills were discontinued.

ON the twenty-third, the symptoms were equally mild; the soreness of the mouth was rather increased, and he began to spit a little, but as he had no stool, he took one pill in the evening.

ON the twenty-fourth, the ptyalism rose considerably, and a small quantity of pulvis jalapii was given him, in order to lessen it, and procure him a few stools.

ON the twenty-fifth, the only circumstance which claimed attention, was the salivation, which was very inconsiderable, and the difficulty of breathing was not very troublesome.

ON

ON the twenty-sixth, the jalap produced no effect; it was repeated in a larger quantity; he had several stools, and the pryalism decreased.

ON the twenty-seventh, eighth and ninth, he continued very well, and, by the evening of the last, the spitting was gone.

ON the thirtieth, a little rhubarb was given him, which procured him two stools; and the next day nothing prevented him from returning to his duty, but the weakness produced from so severe a disorder. He had nourishing food, and some wine, constantly given him (for we were then in the channel, and had got fresh provisions on board) and by the third of June, the day we arrived at our Moorings at Erith, he was able to keep the deck; and about a fortnight afterwards his health was entirely re-established.

CASE II.

RICHARD FAR, about twenty years of age, was a man of a good constitution, and had been very healthy all the former part of the voyage.

ON

ON the twenty-fifth of April, he first complained of the disorder before described, and had all the symptoms of it, with a considerable degree of aggravation. For some time preceding that he was on the list for a severe catarrh, which proved very troublesome, and continued long after the disorder of the liver made its appearance.

ON the 19th of May, his belly and legs were very much swelled, and his breathing was become very difficult: Sixteen ounces of blood were taken away from him on the morning of that day, and soon after he took three of the pills, as prescribed for Patterfon.

His blood was, to all appearance, in a perfectly sound state; the separation of serum and crassamentum, soon took place; and they were both of such a kind as might be expected from a man in full health. The crassamentum, in particular,, was more firm than that which is usually found in one who had been so long in a warm climate; and the little globular appearances, or bells, produced on the surface by
the

the motion of the blood from the orifice to the bason, continued without alteration.

ON the twentieth, he was not at all moved by the pills, but his respiration was rendered much freer than before the evacuation. Three more pills were given him that day.

ON the twenty-first, he was briskly purged, the consequence of which was, towards the evening, he was so much weakened that a deliquium came on, but he was soon recovered from this, and supported by restoratives: He had a very good night's rest, and awaked much refreshed the next morning.

ON the twenty-second, he was very easy; the like good symptoms appeared also on the twenty-third, fourth and fifth, and the same medicines were continued.

ON the twenty-sixth, he was able to walk every where about the ship, and the several swellings were very much reduced. He continued to take two pills every night.

ON the twenty-seventh, he had no complaints, except a slight weakness, to prevent him from returning to his duty. He had that day a dose of rhubarb..

On the twenty-eighth, he was discharged from the sick list, and went upon deck perfectly recovered.

CASE III.

JOHN REYNOLDS, a lad about eighteen, was of a healthy sanguineous complexion. We received him on board at Bombay, and from that time, while at China, and on our passage betwixt that and St. Helena, he had only suffered from one attack of an intermitting fever, which speedily gave way to the treatment made use of on that occasion.

MAY the second, he was attacked with a severe cough; and sometime afterwards the diagnostics of an enlarged liver came on. By the 19th, the symptoms were become very severe, and he could not lie in his hammock. His belly and legs were much swelled, and his breathing very laborious.

laborious. He was, in common with the rest, bled, and his blood put on much the same appearance as Farr's, being in a very healthy state. Three pills were afterwards exhibited, and in the evening he had a copious evacuation, from which he found great relief.

ON the twentieth, the same practice was continued, and the symptoms were as favourable.

ON the twenty-first, second, third and fourth, he recovered very fast; and by the twenty-sixth was able to return to his duty quite well; the several enlarged parts being entirely reduced, and his appetite perfectly restored.

CASE IV.

HAIL MASON, a strong healthy man, about thirty years of age, complained of a cough and sore throat about the beginning of May, which, however, soon gave way to proper treatment; but, on the seventh, his legs and belly began to swell, and he perceived a difficulty of respiration in consequence of these symptoms. — The disorder continued increasing, and, on the
 twen-

twentieth, his breathing was very distressing, and the tumefactions considerable. He had sixteen ounces of blood drawn off on that day, which was in a very healthy state, and he took three of the alterative pills. His lungs became much freer in consequence of this evacuation: In the evening he had a motion, and three more pills were prescribed for him.

ON the twenty-first, second and third, he continued very easy, and the swellings began to decrease. — The pills were repeated from four to six in number, which generally procured one stool each day.

ON the twenty-fourth, though he took seven pills, he had no evacuation, and in the evening his breathing was more difficult than it had been from the day he was bled.

ON the twenty-fifth, the difficulty of breathing was easier, but his mouth began to be a little sore, on which the pills were discontinued.

ON the twenty-sixth, he spit a good deal, for which a little rhubarb was exhibited.

ON the twenty-seventh, the salivation considerably abated, but his respiration was a little oppressed; he therefore returned to the pills.

ON the twenty-eighth, the discharge from the salivary glands increased a little; and it was remarkable in him, that as that came on, the difficulty of breathing decreased: This observation induced me to keep up the spitting for a few days; at the same time great care was taken to prevent it from becoming too copious.

ON the twenty-ninth, thirtieth and thirty-first, he was perfectly free from any kind of anxiety. The ptyalism was very moderate, and as the pills were, on the last of these days, disused, it lessened a little.

ON the first of June, every morbid appearance was vanished, though the foreness of his mouth had not quite left him.

This day he was discharged from the ship, and in a short time afterwards, he recovered his former state of health.

CASE V.

CHARLES SLATOR, was about twenty-five years of age, and of a vigorous habit; he had been in health the former part of the voyage; but was seized, on the nineteenth of May, in a manner very similar to that in which Bond was attacked, with a slight fever previous to the appearance of the disorder of his liver.

ON the twentieth of May, his breathing was exceedingly laborious; and the other symptoms of that complaint were risen to a very great height. He was bled, and two pills were given him that morning: His blood was in a sound state. In the course of that day he took six pills, which moved him twice. His breathing was greatly relieved by twelve o'clock, and in the evening he was perfectly easy.

ON the twenty-first, the pills were repeated, and were continued to the twenty-fifth, when the disease every day decreased; and on the 30th he was so well recovered as to be able to return to his duty.

CASE VI.

JOHN CORDEY was of a weakly constitution, about thirty-five years of age ; he had suffered from an intermitting fever in the preceding part of the voyage. The latter end of April he was attacked with a jaundice, which proved very obstinate, and was attended with a stubborn costiveness, which it was extremely difficult to remove.

UPON the seventh of May, his ictterical complaint was superceded by the enlargement of the liver ; and in a few days it became very severe, particularly the symptom so often mentioned before, i. e, the difficulty of breathing. The pains in his back and head, with costiveness, continued, a circumstance which did not occur in any of the rest. The disorder was in a short time got under by bleeding and the use of the alterative pills. There was a small quantity of blood extracted, and that was in rather a dissolved state, naturally produced by his previous illness. By the time the ship reached her moorings, his health was pretty well restored.

CASE VII.

CHARLES OTWAY, a lad about eighteen, was remarkably healthy all the voyage; he was suddenly attacked with this disorder, without any previous illness.

ON the seventeenth of May, his breathing, in a few days, became very troublesome, and his legs and abdomen swelled very much. He was bled with very good effect, and the pills, by promoting the natural evacuation, in ten days removed his complaints; and by the first of June he had entirely recovered from the disease.

CASE VIII.

THOMAS ADAMS, twenty-five years of age, was in a good state of health the whole voyage, till he was attacked with the disease above-mentioned about the middle of May; and by the nineteenth the symptoms of it came on very severe. He was then bled, and the same treatment was made use of for him as for the others. The morbid appearances in a short time gave way to the practice adopted for them; and he returned

turned to his duty on the twenty-seventh of that month.

CHARLES RICHMOND, JAMES BROTHERS, THOMAS KERR, and CHARLES WILLIS, when attacked with this disorder, were treated in the same manner with the foregoing patients ; but as the symptoms and the progress of cure were very similar to those of Patterson, Farr, &c. I have omitted particularising their cases, in order to avoid prolixity.

I SHALL now submit to the reader a short account of a few persons, who, from labouring under this complaint of the liver, had some remarkable symptoms, and received considerable relief from the medicines before described ; but whom, I cannot, consistent with that candor so essential to the relator of medical cases, assert were absolutely cured by them, as they left the ship in a valetudinary state, and were taken into different hospitals.

RICHARD JOHNSON, had long been afflicted with an intermitting fever, and was much weakened by it : He was attacked with the enlargement of the liver in a short time after M'Cloud,
and

and the symptoms of disease in both were almost the same.

ON the evening of the eighteenth of May, he was reduced to the following situation. His belly was enlarged to an extraordinary size, his legs very much swelled, and his difficulty of breathing so great, that, without relief, it was not probable he could exist many hours. His great distress made it expedient for him to be supported in a reclining posture; the coldness of the extremities, with the hollow glassy eyes, a fluttering pulsation, and other symptoms of death, were then upon him.

In this dreadful situation, there was nothing that the least expectation of relief could be derived from but reducing the quantity of blood, and by that means afford a freer action to the lungs; I therefore cautiously took away a few ounces; as it flowed, the pulse clearly became fuller under my finger, and his defect of breathing was considerably alleviated: The blood, upon standing quiet some time, put on the consistence (like M^cClouds) of a thin jelly, and no separation of the serum from the gross

part of it occurred. Soon after some pills were given him; and in the evening his respiration was tolerably easy.

THE symptoms of morbid distress were much relieved from the use of the pills, &c. for the three following days, when the complaint grew much more inveterate, and he laboured so much for breath, that it was necessary to take away a little more blood, in order to prevent him from being instantly suffocated * : About three ounces were drawn off, and he immediately became better, but it rendered him extremely weak, and strong cordials were required, in order to avoid a total prostration of strength. From this time, till our arrival, the weakness was the chief thing that was an object of concern; not but that his respiration was very difficult at times; however, by no means to so great a degree as it had been previous to the evacuations.

* In such cases, I apprehend, the greatest care is requisite; because, in order to give a prospect for life, a risk may sometimes be run of taking it away altogether by large evacuations, producing *deliquii*, and death may be the consequence. Without evacuation, in such a case as this, the patient must be quickly suffocated.

WHEN

WHEN the ship arrived at her moorings, he was sent to an hospital, where he soon after recovered his former health.

THOMAS SMYTH, was seized with a diarrhœa about the twelfth of April, which continued very obstinately for a considerable time; and at length degenerated into a dysentery, which soon exhibited the most dangerous appearances.

ABOUT the twentieth of May, his legs began to swell, and the twenty-third the tumefaction extended to the abdomen; the respiration became laborious, and every symptom of the dysentery vanished. This disease in a few hours arose to a very dangerous height: the weak state he was reduced to, contra-indicated the opening a vein on any account, and we were obliged to be contented with the use of the pills; eight were administered before a stool was procured, and then he was somewhat relieved: A sufficient quantity of pills were afterwards exhibited to keep up this necessary discharge; and we can only say, that by these means the disease was prevented from gaining ground.

WHEN we came home he was discharged ; and admission being procured for him into an hospital in London, in about three weeks after I saw him in perfect health.

NONE of the other people were so bad as Smyth ; but Cunningham, Wyat, Elders, Gunning, and a few others, had some symptoms of this disease on them when they left the ship : however, from being unable to move from one situation to another, and many of them labouring for breath in a terrible manner, they were all, except Johnson and Smyth, able to walk out of the vessel at Erith, and soon after recovered their health. This I can confidently assert, as I either saw, or heard from all of them afterwards.

C H A P. III.

*An attempt to ascertain the difference between
the Liver disordered, and the Scurvy.*

THE accurate Lind, in his very useful
Treatise on the Scurvy, gives the following
as the particular diagnostics of that disorder.

“ AN aversion to motion, which soon de-
“ generates into an universal lassitude, with
“ a stiffness and feebleness of the knees upon
“ using exercise, with which the patients are
“ apt to be soon fatigued and put out of
“ breath. This lassitude and difficulty of breath-
“ ing, are observed to be amongst the most con-
“ stant concomitants of the disorder.

“ THEIR gums soon after swell, and are apt
“ to bleed on the gentlest friction. Their breath
“ is then offensive; and, upon looking into
“ their mouth, the gums have an unusual livid
“ appearance; are soft and spongy, and become
“ afterwards extremely putrid and fungous, one
“ of the most distinguishing signs of the disease:
“ They are subject not only to a bleeding from
“ the gums, but from other parts of the body,
“ especially the nose.

AGAIN,

AGAIN, speaking of the appearances on the skin, Dr. Lind says, "When examined, it is
 "found covered with several reddish, bluish,
 "or more frequently black and livid spots,
 "equal with the surface of the skin, resembling
 "an effusion of blood under it, as it were from
 "a bruise *".

GRANIGER, the ingenious author of *Historia Febris Anomalæ*, Batav. ann. 1746, &c. in a letter to the doctor above-mentioned, observes,
 "Its first appearances were, a lassitude, breath-
 lessness upon the least quickness of motion, and
 a taste in the mouth peculiarly disagreeable :
 these were soon followed by spongy painful
 gums, bleeding from the slightest touch, foetid
 breath, pains always of their thighs, frequently
 of their legs, sometimes of their loins, seldom
 of their arms. All these parts were usually dis-
 coloured with spots, which, as the disease in-
 creased, grew black and broad. The fore part
 of the thighs and legs chiefly suffered : The
 former, says he, I have seen all livid ; the latter
 very closely spotted, &c. †"

* Vid. p. 99, and 100. † Vid. p. 121, and 122.

It is unnecessary to give farther quotations; these are, in short, by the concurring opinion of all who have wrote upon this disorder, the pathognomic symptoms of the scurvy. From this account the reader will readily perceive, that the disease which has been the principal subject of these sheets, is similar, in many respects, to the scurvy; particularly in it's first appearances, as œdematous swellings of the legs, difficulty of breathing upon increased motion, languor, stiffness of the joints, and pains about the lumbar vertebræ: These are the instances in which they are alike; but they differ materially in many points of the utmost consequence, which requires the strictest attention.

IN the foregoing cases it appears that there were none of the patients whose gums were putrid, who had spots on any part of their bodies, no ulceration on their legs, no extravassations or hemorage. The breath was not foetid, and their difficulty of breathing, towards the close of the disease, was not confined to hasty motions; for these men who had the disorder greatly aggravated, could not venture to move from
the

the reclining posture in which they were placed, without bringing on such an increase of that symptom as to endanger their immediate suffocation; and in all, towards the latter period of the disease, the dyspnoea was continual. Their faces were not wan and fallow, as in the scurvy, but the complexion was more florid than usual; and even those who had been harrassed by a previous chronic disorder, were less pale than common.

UPON dissection, the appearances were very different, in the bodies of those who died scorbutic. Those who perished in that fatal disease from suffocation, were found, by Lind, Rouppe, and others, to be in a very putrid state; the internal viscera particularly so, and to have water in the thorax; or, as Lind recites, from the descriptions of the surgeons who went round the world with Lord Anson, "All the
 " parts (speaking of the contents of the thorax)
 " were so mixed and blended with each other,
 " that they made up but one mass, so con-
 " founded that one could scarce distinguish one
 " from another *."

* Vid. p. 241.

THE abdominal viscera were found to be mortified, by Rouppe, and of one he says, “† Hepar atque lien adeo corrupta, ut ea manu “in pollinem facile potuiffem redigere,” and so of the other bowels.

THE generality of those who communicated their observations to Lind, gave nearly the same account.

IN the postscript to his work these putrid appearances were not, indeed, so common in the internal parts; but then there were always extravassations in several places, or ulcers in the mouth and legs.

IN this disorder of the liver, the contents of the thorax, the reader will remember, were not at all in a morbid state, except the lungs, and all those of the abdomen, but the liver, in a perfectly sound condition.

From hence I conclude that this is a disorder entirely different from the scurvy; that it is of

† Vid. Rouppe de Morb. Navigan. p. 155.

the first consequence to distinguish them ; and that the practice which will succeed in the one, will be attended with fatal consequences in the other.

IF the scurvy is mistaken for this liver-complaint, and phlebotomy with mercurials are made use of, it is the united opinion of the ablest practitioners, and most accurate observers of that disorder, that they must be attended with the immediate death of the patient ; and, on the contrary, if this is mistaken for the scurvy, and these evacuations are not made, death must ensue from the difficulty of breathing ; as happened to the three unfortunate men whose cases are related in the beginning of this Treatise.

F I N I S.